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EXAMINER				
RHU, KRIS M				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/539,111

**Applicant(s)**

STAIGER, DIETER E

**Examiner**

KRIS RHU

**Art Unit**

2184

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 July 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-8 and 10 is/are rejected.
- 7) ☒ Claim(s) 2 and 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/22)
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date: \_\_\_\_\_

***DETAILED ACTION***

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "disposing [of] said interface expander controllers on a single Application Specific Integrated Circuit" recited in claim 10 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New

Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (Description and Disadvantages of Prior Art), herein referred to as AAPA.

Referring to claim 1, AAPA teaches a circuit in an embedded processing system covering a number of technical applications, a number of operative functions of the number of technical applications being performed via a respective number of application-specific Electronic Control Units (ECU), the circuit comprising: a) a number of controller means ("**Typically, a prior art embedded processing system covering a plurality of technical applications, the operative functions of which are performed with a respective plurality of application-specific Electronic Control Units (ECU), whereby an ECU comprises a micro-controller and/or one or more processors, and specific input/output (I/O) subsystem**", Page 2, Lines 13-

19) for controlling respective application specific ECUs, each of the controller means comprising a number of application-specific support functions and L/O subsystems; and b) a number of processor units (**"Typically, a prior art embedded processing system covering a plurality of technical applications, the operative functions of which are performed with a respective plurality of application-specific Electronic Control Units (ECU), whereby an ECU comprises a micro-controller and/or one or more processors, and specific input/output (I/O) subsystem", Page 2, Lines 13-19**) each having an I/O-interface operatively connecting to a respective one of the controller means and supplying that controller means with computing power.

AAPA does not appear to explicitly teach wherein at least one of the processor units and a respective controller means are implemented on different chips.

However, at the time of the invention, it would have been obvious for one of ordinary skill in the art, having the teachings of AAPA before him or her, to modify AAPA to include wherein at least one of the processor units and a respective controller means are implemented on different chips because it would merely be an alternative arrangement or choice of design that would not affect the functionality of the invention. The modification would produce similar results.

Therefore, it would have been obvious to modify AAPA to obtain the invention as specified by the instant claim.

As to claim 7, AAPA teaches an embedded system ("**Typically, a prior art embedded processing system covering a plurality of technical applications, the operative functions of which are performed with a respective plurality of application-specific Electronic Control Units (ECU), whereby an ECU comprises a micro-controller and/or one or more processors, and specific input/output (I/O) subsystem**", Page 2, Lines 13-19) having an electronic circuit according to claim 1.

Referring to claim 8, AAPA teaches a method of operating an embedded processing system comprising: controlling a number of electronic control units with a number of interface expander controllers ("**Typically, a prior art embedded processing system covering a plurality of technical applications, the operative functions of which are performed with a respective plurality of application-specific Electronic Control Units (ECU), whereby an ECU comprises a micro-controller and/or one or more processors, and specific input/output (I/O) subsystem**", Page 2, Lines 13-19); and providing computing power to said interface expander controllers with a separate number of processors ("**Typically, a prior art embedded processing system covering a plurality of technical applications, the operative functions of which are performed with a respective plurality of application-specific Electronic Control Units (ECU), whereby an ECU comprises a micro-controller and/or one or more processors, and specific input/output (I/O) subsystem**", Page 2, Lines 13-19).

AAPA does not appear to explicitly teach wherein said interface expander controllers are disposed on a separate chip from said electronic control units.

However, at the time of the invention, it would have been obvious for one of ordinary skill in the art, having the teachings of AAPA before him or her, to modify AAPA to include wherein said interface expander controllers are disposed on a separate chip from said electronic control units because it would merely be an alternative arrangement or choice of design that would not affect the functionality of the invention. The modification would produce similar results.

Therefore, it would have been obvious to modify AAPA to obtain the invention as specified by the instant claim.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Sadler (US 6,408,407 B1).

As to claim 5, AAPA does not appear to teach the circuit according to claim 1, further comprising a database storing instructions on how to handle specific errors associated with the number of processor units.

Sadler, however, teaches the circuit according to claim 1, further comprising a database (**"The error handler 102 further includes a user action database 212 which includes a sequence of step by step user actions to be taken to execute each remedy scenario", Column 4, Lines 36-38**) storing instructions on how to handle specific errors associated with the number of processor units.

AAPA and Sadler are analogous arts because they both teach hardware devices and errors are common for all devices.

At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of AAPA and Sadler before him or her, to modify AAPA to include a database storing instructions on how to handle specific errors associated with the number of processor units, as taught by Sadler, because it would merely involve implementing a known way of handling errors in AAPA's invention. Errors are common in hardware and software, and being able to handle errors is a known important concept.

Therefore, it would have been obvious to combine Sadler with AAPA to obtain the invention as specified in the instant claim.

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Seiple (US 6,222,484 B1).

As to claim 6, AAPA does not appear to teach the circuit according to claim 1, further comprising a number of emergency controllers for continuously storing current global positioning system (GPS) coordinates and configured to send an emergency signal including the coordinates in case a number of external sensor devices detect an emergency case.

Seiple, however, teaches the circuit according to claim 1, further comprising a number of emergency controllers for continuously storing current global positioning system (GPS) coordinates **(The PELS personal unit is**



**updated with the most current ephemeris data during a time when the person is inactive on-board the vessel by plugging it into an input module connected with the vessel's GPS system", Column 2, Lines 44-47)** and configured to send an emergency signal ("**If the person falls overboard, the PELS personal unit is activated to send an emergency signal with the person's location coordinates", Column 2, Lines 49-51)**) including the coordinates in case a number of external sensor devices detect an emergency case.

AAPA and Seiple are analogous arts because both ECUs and GPS systems are known to be used in automobiles.

At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of AAPA and Seiple before him or her, to modify AAPA to include a number of emergency controllers for continuously storing current global positioning system (GPS) coordinates and configured to send an emergency signal including the coordinates in case a number of external sensor devices detect an emergency case, as taught by Seiple, because it would merely involve implementing a known emergency sequence for personal GPS systems into a GPS system of a car. As Applicant's specification has shown in paragraph 2 of page 2, ECUs are known to be used in embedded systems of vehicles.

Therefore, it would have been obvious to combine Seiple with AAPA to obtain the invention as specified in the instant claim.

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Denso (EP 1136325 A2).

As to claim 10, AAPA does not appear to teach the method of claim 8, further comprising disposing said interface expander controllers on a single Application Specific integrated Circuit.

Denso, however, teaches the method of claim 8, further comprising disposing said interface expander controllers on a single Application Specific integrated Circuit (**Note all of the ECUs are located on the vehicle control apparatus 1, Figure 1**).

AAPA and Denso are analogous arts because they both teach ECUs.

At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of AAPA and Denso before him or her, to modify AAPA to include disposing said interface expander controllers on a single Application Specific integrated Circuit, as taught by Denso, because it would merely be an alternative arrangement or choice of design that would not affect the functionality of the invention. The modification would produce similar results.

Therefore, it would have been obvious to modify AAPA to obtain the invention as specified by the instant claim.

***Allowable Subject Matter***

8. Claims 2 and 9 are allowable over prior art.

9. The following is a statement of reasons for the indication of allowable subject matter: The prior arts do not teach or fairly suggest the following limitations in claim 2:

mapping means for mapping the I/O subsystems to the processor units, and a General Controller Unit operatively coupled to the mapping means and configured to dynamically switch at least one of the processor units into communication with a selected controller means based on processor timing requirements.

The prior arts do not teach or fairly suggest the following limitations in claim 9:

selectively providing communication between said interface expander controllers and said processor with a General Controller Unit.

Further the combination of the above limitations with all of the other limitations in the respective independent claims is not obvious.

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Staiger (US 2001/0016789 A1) teaches ECUs with control elements, each able to communicate with other control elements.

Kapolka et al. (US 2004/0138790 A1) teaches multiple ECUs communicating with a vehicle interface.

Schreder (US 5,504,482) teaches a GPS system in an automobile.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KRIS RHU whose telephone number is 571-270-1728. The examiner can normally be reached on MTWThF 8:30-6 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Tsai can be reached on 571-272-4176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KR

/Henry W.H. Tsai/

Supervisory Patent Examiner, Art Unit 2184